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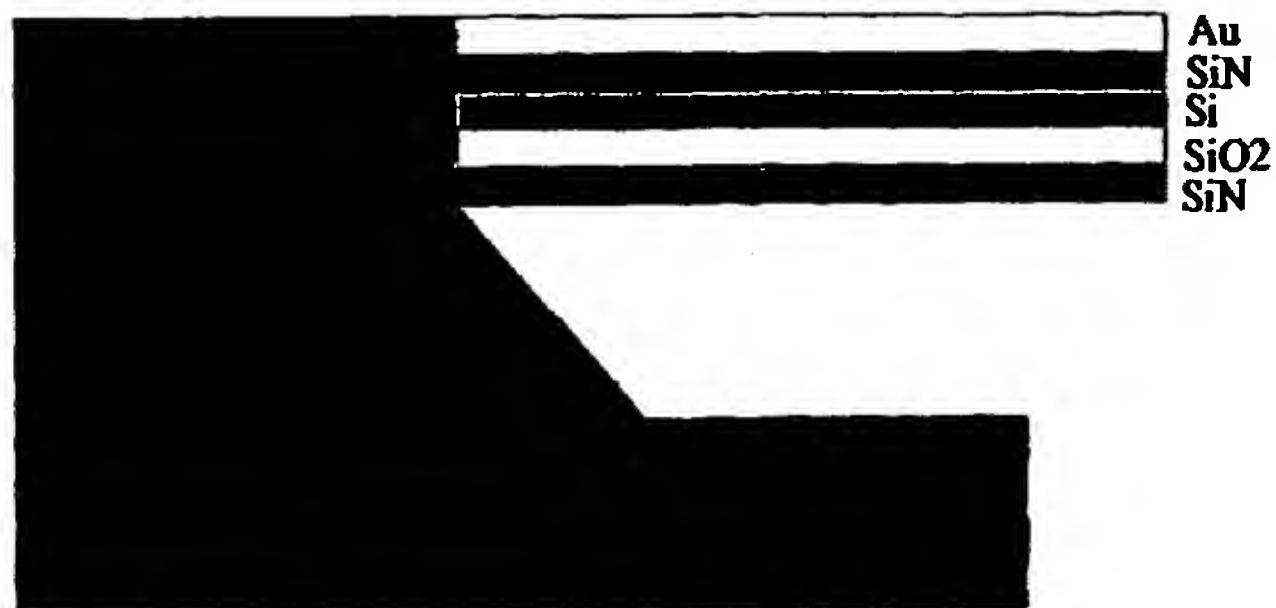
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(54) Title: A CANTILEVER SENSOR USING BOTH THE LONGITUDINAL AND THE TRANSVERSAL PIEZORESISTIVE COEFFICIENTS



(57) Abstract: The present invention relates to a sensor comprising least one sensor unit e.g. a cantilever. The sensor unit comprises a capture surface area and a piezoresistive detection system, for direct detection of stress change of the sensor unit when applying an electrical field over the piezoresistive element. The piezoresistive element has a longitudinal direction in the current direction and a transverse direction perpendicular there to. The longitudinal direction and the transverse direction each has a stress componant and a current componant. The piezoresistive element is of an anisotropic

material, and is arranged so that the numerically value of the sum of the longitudinal piezoresistive coefficient  $\pi_1$  and the transverse piezoresistive coefficient  $\pi_t$ , along at least 25% of the length, of the piezoresistive element is at least  $10^{-10} \text{ Pa}^{-1} \times P$ , such as  $2 \times 10^{-10} \text{ Pa}^{-1} \times P$ , such as  $3 \times 10^{-10} \text{ Pa}^{-1} \times P$ , such as  $4 \times 10^{-10} \text{ Pa}^{-1} \times P$ , wherein  $P$  is the piezoresistance factor, and wherein the piezoresistive coefficients  $\pi_1$  and  $\pi_t$  are determined as componants in the coordinate system used to determine the longitudinal direction.

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